ABSTRACT

METHOD AND APPARATUS FOR INTERFERENCE CANCELLATION IN SHARED COMMUNICATION MEDIUMS

An apparatus and method for reducing interference over a common communication medium, wired or wireless is provided. The apparatus reduces interference from a number of sources using a common architecture which may be used to service a modem pool or discrete modems which share the common communication medium. Interference due to near end cross-talk (NEXT), self-NEXT or echo, and far end cross-talk (FEXT) may all be substantially reduced or cancelled by the apparatus. Additionally, channel characteristics for individual data channels across the common communication medium may be determined. The apparatus provides support for multiple modem protocols including X-DSL protocols such as G.Lite, ADSL, VDSL, SDSL, MDSL, RADSL, and HDSL. The apparatus supports multiple line codes such as the discrete multi-tone (DMT) and carrier less AM/PM (CAP) line codes associated with X-DSL communications. The apparatus may be implemented in hardware, firmware or software. The apparatus has a compact form factor due to pooling of the interference canceling elements.